

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF ARIZONA**

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<b>United States of America,</b>	)	
	)	
Plaintiff,	)	No. <b>CR-15-1723-TUC-RCC-DTF</b>
	)	
vs.	)	Tucson, Arizona
	)	April 9, 2018
<b>Lonnie Ray Swartz,</b>	)	1:40 p.m.
	)	
Defendant.	)	
	)	

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**BEFORE: THE HONORABLE RANER C. COLLINS, JUDGE**

**REPORTER'S EXCERPTED TRANSCRIPT OF PROCEEDINGS**

**JURY TRIAL**  
**DAY 12**

**(TESTIMONY OF LAURENCE MILLER)**

Official Court Reporter:  
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Proceedings Reported by Stenographic Court Reporter  
Transcript Prepared by Computer-Aided Transcription

CR-15-1723-TUC-RCC - April 9, 2018

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CR-15-1723-TUC-RCC - April 9, 2018

I N D E XDEFENSE WITNESS:      DIRECT      CROSS      REDIRECT      RECROSS

LAURENCE MILLER

By Mr. Chapman

6

By Ms. Feldmeier

54

By Mr. Chapman

67

By the jury

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By Ms. Feldmeier

70

Discussion Held at Sidebar

4, 67

INDEX OF EXHIBITSEXHIBIT      IDENT      RECEIVEDNO.      DESCRIPTION1545      Dr. Miller's PowerPoint  
presentation

18

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1 (The following excerpt is the testimony of Laurence  
2 Miller.)

3 (At sidebar on the record at 1:40 p.m.)

4 THE COURT: He's calling Dr. Miller.

5 MR. CHAPMAN: This weekend he sent me a 13:40:42  
6 24-page -- 24-slide PowerPoint. It's not anything case  
7 specific, it just talks about the brain and where organs are in  
8 the brain. It shows pictures of it and that kind of thing. It  
9 talks about the brain's emergency response system.

10 MR. KLEINDIENST: It's more than that. 13:41:02

11 MR. CHAPMAN: I'm not done yet.

12 I'm going to have him talk about the emergency  
13 response system. This is just demonstrative exhibits to show  
14 physically where everything it. It's really nothing more than  
15 that. And I'm not seeking its admission into evidence, simply 13:41:13  
16 to use it as demonstrative exhibits before the jury.

17 MR. KLEINDIENST: We just got it --

18 MS. FELDMEIER: We got it this morning.

19 MR. KLEINDIENST: -- this morning.

20 And it goes into -- to basically bolster the 13:41:28  
21 defendant's testimony. He's had this expert --

22 THE COURT: Is this based upon the defendant's  
23 testimony or based upon the general overview of how this stuff  
24 happens?

25 MR. CHAPMAN: It's general concepts. It's just 13:41:37

~~CR-15-1723-TUC-RCC - April 9, 2018~~

1 illustrative, essentially -- illustrations that show like where  
2 the amygdala is in the brain and where the hippocampus is. And  
3 as he's explaining how the brain works -- which we disclosed  
4 all his opinions over a year ago -- he just wants to use these  
5 illustrations to help the jury --

13:42:01

6 THE COURT: I'm going to have to get one of those  
7 thumb things.

8 MS. FELDMEIER: The rubber thumb.

9 MR. RIGHT1: This is a lot of new material that we  
10 haven't gotten before on this expert --

13:42:54

11 THE COURT: You're whispering. She can't hear you.

12 MR. KLEINDIENST: It's a lot of material that we've  
13 not yet gotten. We got one report from Dr. Miller. I mean, we  
14 just got this thing this morning, and he's now going to show it  
15 to the jury. And we would object based on late disclosure. He  
16 can testify if he wants to, but --

13:43:09

17 MR. CHAPMAN: This is just a visual aid to help the  
18 jury.

19 THE COURT: I'm looking at the PowerPoint myself, and  
20 it primarily discusses what I expect the import of his  
21 testimony to be.

13:43:23

22 While I'm not all that happy with it being disclosed  
23 today, I don't think you're really going to be hurt by this.  
24 So I'm going to let him use it for demonstrative only. It's  
25 not going back to the jury.

13:43:37

~~Laurence Miller - Direct Examination~~

1 (End of discussion at sidebar.)

2 (Jury in at 1:46 p.m.)

3 THE COURT: Let the record show the jury's returned  
4 back to the courtroom, the presence of all counsel and the  
5 defendant.

13:46:08

6 You may call your next witness, Mr. Chapman.

7 MR. CHAPMAN: The defense calls Dr. Laurence Miller.

8 THE CLERK: Raise your right hand, please.

9 (LAURENCE MILLER, DEFENSE WITNESS, SWORN.)

10 THE CLERK: Thank you, please be seated.

13:46:29

11 Please pull the microphone over to you, speak directly  
12 into it.

13 State your full name for the record and please spell  
14 your last name.

15 THE WITNESS: Laurence Miller, Ph.D., M-I-L-L-E-R.

13:46:48

16 Good afternoon, Judge.

17 THE COURT: Good afternoon, Mr. Miller -- excuse me,  
18 Dr. Miller.

19 DIRECT EXAMINATION

20 BY MR. CHAPMAN:

13:46:58

21 Q. Good afternoon, Dr. Miller.

22 Can you tell us what your profession is?

23 A. Licensed psychologist.

24 Q. What is a psychologist?

25 A. A psychologist is a doctor-level professional who is an

13:47:07

**Laurence Miller - Direct Examination**

1 expert in human behavior and the factors that underlie it.

2 Q. Are there different branches of psychology?

3 A. Well, there are several major branches. Experimental  
4 psychology is basically involved in research. Clinical  
5 psychology is involved in the provision of clinical services,  
6 mainly in areas of assessment and psychotherapy. Forensic  
7 psychology applies behavioral principles to matters of the law.  
8 And then there are several subdivisions of each of those  
9 branches.

13:47:27

10 Q. All right. What fields of psychology does your practice  
11 involve?

13:47:42

12 A. My practice involves clinical psychology, which is involved  
13 in providing psychotherapy services to patients. It also  
14 encompasses neuropsychology, which is the evaluation of  
15 individuals with various types of brain syndromes or brain  
16 disorders, and making recommendations for treatment. It  
17 involves forensic psychology, which is both civil forensic  
18 psychology, such as personal injury lawsuits, marriage and  
19 family disputes, as well as clinical forensic psychology,  
20 things like competency to stand trial, insanity defense and so  
21 on. And a branch of that is something we call police  
22 psychology or law enforcement psychology.

13:47:57

13:48:16

23 Q. Is that an area of specialty for you?

24 A. Yes, it is.

25 Q. And how long have you been a psychologist?

13:48:27

~~Laurence Miller - Direct Examination~~

1 A. I've been a licensed psychologist since 1990, so that's 30  
2 something years.

3 Q. How long have you worked in the area of forensic psychology  
4 and police psychology?

5 A. Forensic psychology, about 25 years. Police psychology, 13:48:41  
6 roughly around the same, about 22, 23 years.

7 Q. And in any of the fields we've talked about so far, have  
8 you been retained previously as an expert?

9 A. Yes.

10 Q. On how many occasions? 13:48:57

11 A. Excuse me?

12 Q. On how many occasions?

13 A. In all cases?

14 Q. Yeah.

15 A. Well, I've been retained as an expert in probably 30, 40 13:49:04  
16 cases that I've done evaluations for.

17 Q. And how many cases involving police shooting events have  
18 you been retained or consulted?

19 A. Well, if we're talking about cases that have gone to court  
20 or have been contested, I'd say about a dozen such cases. 13:49:21

21 Q. All right. Now, what do you mean by the term "contested"?

22 A. Well, I mean, one of the things that I do for police  
23 agencies is conduct a variety of evaluations.

24 The three main types of evaluations that police  
25 officers undergo, number one is what's called a preemployment 13:49:38



~~Laurence Miller - Direct Examination~~

1 screening. And this is a psychological evaluation that's done  
2 before an officer is offered a job. We want to make sure that  
3 the officers that we're hiring are psychologically fit to carry  
4 out the responsibilities of being a police officer.

5 Following their hiring into the service, if a police 13:49:54  
6 officer is found or thought to have some type of misconduct,  
7 and if that misconduct can be related to a psychological factor  
8 or issue that the officer's going through, the commanding  
9 officer may request something that's called a fitness for duty  
10 evaluation. This is assuming we can find a psychological basis 13:50:13  
11 for this officer's inability to perform their duties, we can  
12 make recommendations for treatment. In many of these cases  
13 many of these officers can be returned to service.

14 A third type of evaluation that not every agency does,  
15 even though it is recommended by the International Association 13:50:30  
16 of Chiefs of Police, is something called a critical incident  
17 follow-up evaluation. So when an officer is involved in a  
18 critical incident, such as an officer-involved shooting,  
19 in-custody death, and like that, the officers are then referred  
20 for a psychological evaluation, not under the presumption of 13:50:48  
21 any wrongdoing on the officer's part, but merely as a  
22 psychological status check to see if the officer is handling  
23 the event okay, if they're having any kind of adverse reaction.

24 And in about the overwhelming majority of cases, 99  
25 percent of cases -- and again, these are almost always 13:51:06

—Laurence Miller - Direct Examination—

1 uncontested cases. These are cases where the officer is not  
2 accused of any kind of misconduct, the shooting or other  
3 in-custody death has already been judged to have been  
4 justified --

5 (Court reporter interruption.)

6 THE WITNESS: I'm sorry, I do have a tendency to  
7 speak.

8 We're concerned with the officer's welfare, because  
9 having been involved in a shooting, which in some cases may  
10 involve a fatality, many of these officers will have a  
11 reaction, at least temporarily. 13:51:29

12 What we find in most of these cases is a kind of  
13 predictable set of psychological reactions --

14 BY MR. CHAPMAN:

15 Q. Can I stop you there? 13:51:40

16 A. Sure.

17 Q. Because I just -- I'm a little confused.

18 So I think what you're telling me is that you'll do  
19 interviews in the context of officer-involved shootings that  
20 are administratively mandated. But then you also do interviews  
21 or evaluations in the context of adversarial proceedings as  
22 well. 13:51:53

23 Am I getting it right?

24 A. Right. I'm sorry if I didn't make that clear.

25 Most of the officers that I see following a critical 13:52:09

—Laurence Miller - Direct Examination—

1 incident, such as an officer-involved shooting, have been  
2 referred by their agency for a kind of routine status check.  
3 Check their mental status, see if they're okay. Often they're  
4 give a few days off, administrative leave.

5 And most of these, 99 percent are returned to service. 13:52:26  
6 This is something that's done basically for the welfare of the  
7 officer, him or herself. There's no question of whether or not  
8 this was a contested or uncontested shooting.

9 Now in many cases that may have not been decided. But  
10 the purpose of that evaluation is strictly for the welfare of 13:52:42  
11 that officer.

12 That's separate from being retained as an expert  
13 witness to evaluate a case in which the justifiability of that  
14 shooting is being contested, such as the present one. That's a  
15 different -- 13:52:57

16 Q. That's -- that was what I was trying to clarify for myself.

17 In both types of scenarios, you're telling us that  
18 you've been retained as an expert; right?

19 A. Well, the first one that I was describing, the more common  
20 one, I wouldn't call it being retained, it's sort of a job that 13:53:16  
21 I do. It's an evaluation that I do with a contract -- in  
22 contract with the agencies that I work with.

23 When you say "retained," you're really talking about  
24 being retained in a legal case, which by definition if it's a  
25 legal case it's adversarial. 13:53:31

~~Laurence Miller - Direct Examination~~

1           So those would be the minority of evaluations I do. The  
2 vast majority are done in the case of uncontested, routine  
3 post-incident evaluations.

4 Q. Okay. And which agencies do you work for in that context?

5 A. I work with a lot of local agencies, regional agencies, the 13:53:46  
6 one that I work with most consistently are the West Palm Beach  
7 Police Department in Florida and the Palm Beach County  
8 Sheriff's Office.

9 Q. Is there any kind of commonality that you see in symptoms  
10 exhibited by police officers in just uncontested administrative 13:54:08  
11 evaluations, and those where you're retained as an expert in a  
12 criminal case like this?

13 A. Well, we're going to get into hopefully in detail a little  
14 later on. But generally you tend to see the same type of  
15 phenomena. 13:54:27

16           The only real difference is, of course, when the  
17 shooting is contested there's going to be added stress on the  
18 officer, primarily from the fact this has now become a legal  
19 case.

20           But in terms of the phenomena that occur during and 13:54:36  
21 immediately following the shooting, before it even becomes a  
22 legal issue, these tend to be fairly common and universal  
23 across officers.

24 Q. In addition to the clinical practice and forensic practice  
25 that you've been telling us about, do you engage in any 13:54:54

~~Laurence Miller - Direct Examination~~

1 additional professional activities?

2 A. Well, again, in terms of treating both civilian patients  
3 and police officers, I also teach in area universities a  
4 variety of courses in psychology. I do continuing education  
5 training for mental health, law enforcement and legal  
6 professionals, and I do some writing and publication.

13:55:14

7 Q. Can you tell me what is police psychology, what that means?

8 A. Police psychology is kind of a hybrid field, it's a  
9 combination of organizational psychology, clinical psychology,  
10 traumatology, and assessment.

13:55:36

11 And what it is is applying the various skills that  
12 psychologists use to questions of law enforcement. This can be  
13 anything from advising hostage negotiating teams to doing  
14 specialized psychotherapy with traumatized officers and their  
15 families. But it also -- it mainly involves the types of  
16 assessments we've been talking about earlier, that is  
17 evaluating officers prior to employment, evaluating officers  
18 who may be underperforming on the job, and also evaluating  
19 officers following a critical incident like an officer-involved  
20 shooting.

13:55:55

13:56:13

21 Q. Have you conducted evaluations in the past of officers  
22 accused of using excessive force?

23 A. I'm sorry, I'm having trouble hearing.

24 Q. Have you conducted evaluations in the past of officers  
25 using -- accused of using excessive force?

13:56:41

—Laurence Miller - Direct Examination—

1 A. Yes.

2 Q. Do these typically take place in an adversarial setting or  
3 in an administrative setting?

4 A. Well, generally if -- well, again, I have to clarify.

5 When there is an officer-involved use of force, 13:57:03  
6 whether it involves a shooting or otherwise, typically this is  
7 going to be investigated by that department's internal affairs  
8 office. They're going to do a thorough evaluation to determine  
9 if the shooting was justifiable under the circumstances.

10 In most cases, most officer-involved shootings are 13:57:20  
11 found to be justified. That is, whatever action the officer  
12 took was reasonable based on the threat to the officer's life  
13 or the life of a civilian.

14 In some cases there may be some question of whether or  
15 not it's justifiable, and the investigation may move on and 13:57:36  
16 continue.

17 In still other cases where it's felt the officer has  
18 done something extremely egregious or even criminal, it may be  
19 turned over to a prosecutor or a state attorney for  
20 prosecution as a crime. 13:57:51

21 But again, the overwhelming majority of  
22 officer-involved shootings are found either at the department  
23 level or at the state level to have been justified.

24 Q. Is there scientific literature available on the psychology  
25 of police use of force? 13:58:10

~~Laurence Miller - Direct Examination~~

1 A. I mean, if you think about it, a number of professionals  
2 use force. For example, military officers use force, but we  
3 typically don't contest that, except in egregious cases.  
4 Because police officers are the only civilian public servants  
5 who are mandated to carry and use a weapon. We give them extra 13:58:26  
6 scrutiny when they actually use that weapon or use that degree  
7 of mandated force in an actual circumstance.

8 So over the past two or three decades there has been a  
9 fair amount of research, mostly involving officers who have  
10 been involved in shootings, mostly involving cases that have 13:58:42  
11 not been contested. These are just ordinary officer-involved  
12 shootings in which the officers have been interviewed and  
13 studied, which has allowed us to comprise a kind of compendium  
14 of reactions that occur.

15 It's important to realize that when we talk about 13:58:58  
16 psychological reactions and officer involved shootings, this is  
17 merely a subset of the much broader field of stress reactions  
18 in general.

19 If you think about situations in which maybe many  
20 people in this courtroom have had, you've been a near car 13:59:11  
21 accident where you've almost gotten extremely hurt, you've  
22 woken up in the middle of the night and the smoke alarm has  
23 been buzzing and you have to get out of the house, you're in a  
24 plane crash and you manage to survive. There is range of  
25 psychological reactions that happen both during and immediately 13:59:28

—Laurence Miller - Direct Examination—

1 follow these types of emergency situations that occur across  
2 these situations.

3 And these have in common the fact that they involve an  
4 immediate and perceived threat to life. In the case of the  
5 officer-involved shooting, that's simply one example of a 13:59:42  
6 particular type of threat to life. And so the same types of  
7 psychological reactions we would see in many other kinds of  
8 emergency situations we see in a somewhat specialized form  
9 after -- during and after an officer-involved shooting.

10 Q. You've been retained by the defense today, is that -- 13:59:57

11 A. That's correct.

12 Q. -- correct?

13 Actually you were retained a long time ago.

14 What is the purpose, why are you here? What's the  
15 purpose of your testimony today? 14:00:09

16 A. Well, it's the jury's task to make the important decision  
17 as to what was the motive behind the use of force of the  
18 defendant in question. My hope is to provide them with some  
19 scientific basis that will enable them and help them to make  
20 that decision. 14:00:26

21 Q. And what documents and other things have you done to  
22 prepare yourself for testimony today?

23 A. Well, in addition to reviewing the documents that I  
24 reviewed, in conjunction with my initial evaluation of  
25 Agent Swartz, I prepared some materials in the form of a 14:00:43



~~Laurence Miller - Direct Examination~~

1 PowerPoint to help the jury understand basically how the brain  
2 manages both ordinary types of perceptions, cognitions,  
3 emotions and behaviors, and how these apply in an emergency  
4 situation.

5 Q. Did you interview Agent Swartz?

14:00:59

6 A. I interview Agent Swartz on three occasions approximately  
7 two years ago.

8 Q. All right. And how did those interviews take place, were  
9 they in person?

10 A. Well, they -- given the distance, they took place over  
11 Skype.

14:01:11

12 Q. All right. Did you also sit through Agent Swartz's  
13 testimony this morning?

14 A. Yes, I did.

15 Q. All right. You're not doing this for free. How much are  
16 you charging the defense for this?

14:01:23

17 A. For the initial evaluation of Agent Swartz back in 2016 my  
18 fee was \$10,000. For out-of-town testimony my fee is \$10,000  
19 per day.

20 Q. All right. And you indicated that you had prepared a  
21 PowerPoint presentation to assist the jury in your testimony  
22 this morning -- or this afternoon?

14:01:39

23 A. Yes.

24 Q. Okay. I'm going to see if I can pull it up.

25 MR. CHAPMAN: Your Honor, at this point I'd offer

14:02:10

~~Laurence Miller - Direct Examination~~

1 defense 1545 for demonstrative purposes only.

2 MS. FELDMEIER: No objection as to demonstrative only,  
3 Your Honor.

4 THE COURT: For demonstrative it can be used.

5 THE WITNESS: We're kind of in the middle of it.

6 MR. CHAPMAN: I know.

7 THE WITNESS: All right. So before we begin it's  
8 important to point out --

9 BY MR. CHAPMAN:

10 Q. Doctor, can I just approach you -- I'm going to give you  
11 the PowerPoint clicker here, and you can go through the slides  
12 as you want to.

14:03:02

13 A. Okay. Thank you.

14 Again, I want to point out that although I prepared  
15 this particular sequence of slides for this testimony, nothing  
16 in the content of this is unique to an officer-involved  
17 shooting or deadly force encounter, these are scientific  
18 principles of stress reaction that apply in virtually all  
19 situations. But where going to apply them specifically here.

14:03:14

20 What I'd like to kind of have you imagine is -- again,  
21 many people in this room may have been in some kind of  
22 emergency situation where you kind of went on automatic, had to  
23 react very quickly, and may have done things that later you  
24 couldn't believe you accomplished but simply carried them out  
25 in order to help you survive, or help someone else survive.

14:03:32

14:03:50

~~Laurence Miller - Direct Examination~~

1 And you did that because your brain has within it a  
2 set of predetermined mechanisms that enable you to survive.  
3 This is what has enabled people throughout history to survive  
4 emergency situations to live to fight another day, and more  
5 importantly to pass on those straights to their offspring.

14:04:06

6 THE COURT: Let's see if we can do a question and  
7 answer as much as possible.

8 BY MR. CHAPMAN:

9 Q. Let me ask you a question before -- you went to the next  
10 slide.

14:04:17

11 Are you going to be telling us about the difference  
12 between how a law enforcement officer processes dangerous  
13 events versus a lay person?

14 A. Not exactly. Because, again, the principles of stress  
15 reaction are fairly universal across conditions. It's kind of  
16 like explaining how the digestive system works, and then  
17 applying it to a particular patient. It's all the same  
18 digestive system, and we all have pretty much the same nervous  
19 system.

14:04:36

20 I'm going to leave it to the jury to decide how they  
21 choose or wish and determine to apply this to the individual  
22 case. What I'm basically providing today are broad principles  
23 of behavior that they can help -- that will hopefully help  
24 their understanding.

14:04:50

25 Q. Okay. So you pulled up a slide that's called Prototypical

14:05:03

—Laurence Miller - Direct Examination—

1 Neuron. How is that significant?

2 A. Well, this is just to emphasize that everything that we  
3 think, do, say, or feel is based on the interaction of  
4 specialized cells called neurons. You have about 86 billion of  
5 these in your brain. Each of these has up to 10,000  
6 connections or more. So 86 billion times 10,000 connections,  
7 each of which is firing at the rate of about 1,000 a second.  
8 So due the math, and you realize how complex any kind of  
9 behavior, even a reflex, all the way up to a complex  
10 decision-making process may be.

14:05:21

14:05:42

11 And the way that neurons communicate with one another  
12 is through a chemical process called neurotransmitters. And I  
13 don't want to get in too much detail about that, but let's take  
14 a quick look at how your brain works. The brain is typically  
15 divided --

16 (Court reporter interruption.)

17 THE WITNESS: I will slow down. I apologize again.

18 Humans have the largest mass of cerebral cortex of any  
19 creature that we know. And we're going to talk about some of  
20 the systems that underlie that cortex.

14:06:14

21 But moving from back to front, your occipital lobe is  
22 mainly involved in the perception of vision.

23 Your parietal lobes, which is the orange color, are  
24 mainly involved in bodily sense, that is being able to perceive  
25 things on your body, what we might call a sense of touch, but

14:06:31

**Laurence Miller - Direct Examination**

1 also your ability to navigate through space, the ability to  
2 tell where you are, tell direction and so on.

3 The temporal lobe is very important for a number of  
4 functions, such as hearing, memory, emotion, motivation.

5 And the frontal lobes are what enable you to use all 14:06:47  
6 those qualities in a coordinated way, they're the planning,  
7 deciding, reacting and behaving part of the brain.

8 Q. What's the cerebellum, what's the purpose of the  
9 cerebellum?

10 A. We're going to talk about the cerebellum later on, but 14:06:58  
11 that's kind of like the motor gyroscope. That enables you to  
12 perform quick ballistic skilled movements, throwing a ball,  
13 typing, playing a musical instrument, or reacting very quickly  
14 under stressful conditions.

15 All right. So we know that there are typically five 14:07:14  
16 senses. There are actually more than five, but there are five  
17 basic senses. And we're not going to deal with three of  
18 them. We're not going to talk about taste, we're not going to  
19 talk about touch, or smell.

20 But for our purposes in this case we're really talking 14:07:24  
21 about what you see and what you hear. That is what we call  
22 vision and audition, seeing and hearing.

23 So obviously you know you see with your eyeball, but  
24 the part that actually makes sense of what you see is not  
25 happening with your eyes, it's actually happening deep within 14:07:39

—Laurence Miller - Direct Examination—

1 your brain. Because after the information, after what you're  
2 looking at is going into your brain and being perceived by the  
3 retina, it goes through a complex set of visual pathways from  
4 the eyeball to the optic nerve to the optic tract, to a  
5 structure called the thalamus, something called the superior 14:07:57  
6 colliculus which enables you to detect movement, even before  
7 know what that movement means. And finally, in kind of an  
8 ironic sense, to the most rear most part of your brain, which  
9 is the visual association areas.

10 So for whatever reason Mother Nature decided to put 14:08:13  
11 the part of your brain that processes vision as far away from  
12 the eyeball as she could.

13 But it's within those occipital lobes, it's within --

14 Q. Could I just stop you for a second?

15 My brain is having a hard time processing some of this 14:08:26  
16 information.

17 So tell me -- you've got this section on visual  
18 radiation. What does that mean? On your diagram.

19 A. I don't want to get too much into the anatomy of this  
20 because I want to keep what's germane to this discussion. And 14:08:46  
21 I realize I'm presenting a lot of new information, and I don't  
22 want to make it anymore painful than it has to be.

23 But basically I just want to illustrate that any sense  
24 that we think about, is not simply like connecting two cans  
25 with a string, it basically goes through multiple layers of 14:09:00

~~Laurence Miller - Direct Examination~~

1 processing before it even reaches the level of awareness.

2 Q. Everything is interconnected.

3 A. All right. So let's talk about hearing. Because, again,

4 what you're -- the way you hear anything is basically little

5 puffs of air that I'm speaking coming through the membrane of 14:09:18

6 this microphone are bouncing off your eardrum, causing three

7 little bones to vibrate, which in turn compresses a

8 fluid-filled tube, which in turn presses on a membrane which

9 sends a nerve signal into your brain through another set of

10 complex pathways, which thank heavens you don't have to 14:09:34

11 memorize.

12 But it's picked up in terms of the sounds that you

13 understand, whether it's the sound of a motor, the sound of a

14 person's voice, or the sound of gunshot, at the upper part of

15 your temporal lobe, or what's call the primary auditory cortex. 14:09:48

16 So what we've seen is, we've seen the sort of what of

17 perception, that is, what you actually see, what you actually

18 hear.

19 But we all know that there's more to perceiving than

20 simply the sensation itself. A lot depends on what you're 14:10:04

21 paying attention to at any given moment. And, for example,

22 you're paying attention to this PowerPoint that I'm presenting.

23 You may not be paying attention to other things going on in the

24 room. You may not be paying attention to what the person next

25 to you is saying or wearing. 14:10:19

~~Laurence Miller - Direct Examination~~

1 And that's because the ability to use vision, the  
2 ability to use hearing in a directly focused way is something  
3 that is handled by the reticular formation. This is the part  
4 of the brain that directs your visual attention, directs your  
5 auditory attention to that which is most important at the  
6 moment.

14:10:36

7 Right now it's most important is paying attention to  
8 my presentation so you can understand how the brain works.  
9 Later you might be paying attention on how to get back to a  
10 hotel room.

14:10:51

11 But we can know that we can flip our attention back  
12 and fourth. For example, have you ever tried listening to two  
13 simultaneous conversations? Right? You can't listen to two  
14 people speaking at the same time. First you pay attention to  
15 one thing, then you pay attention to something else.

14:11:02

16 How many times has somebody been engrossed in a  
17 conversation and you call their names several times and they  
18 don't respond until you have to tap them on the shoulder?  
19 That's because their reticular formation is focusing their  
20 attention on something that's important at the moment.

14:11:16

21 So, again, these are things that happen every day. We  
22 allocate our attention, whether it's visual or auditory, to  
23 that which is most important.

24 And, of course, in an emergency situation what's going  
25 to be most important is going to be some threat to our life.

14:11:27



—Laurence Miller - Direct Examination—

1 So we've got the what of perception, that is vision or  
2 audition. We've got the direction in which we're pointing that  
3 perception. But the next question is, why pay attention to  
4 anything in the first place?

5 And typically we're going to pay attention to 14:11:43  
6 something if it's important. And that's determined by yet  
7 another system in the brain called the limbic system. The  
8 limbic system is the system of the brain that's involved in  
9 emotion, motivation, and memory.

10 Why are these important? Because we remember things 14:11:57  
11 if they're important to us in some way. And that goes for both  
12 good things and bad things. If we have a particularly pleasant  
13 experience we want to remember that so we can do it again. If  
14 we have a particularly painful or bad experience, and assuming  
15 we live through it, we want to remember that so we can avoid it 14:12:13  
16 again.

17 But there are a couple of subsystems of this limbic  
18 system that are important to point out. There's a structure  
19 called the amygdala, which is --

20 Q. Doctor, you've got to slow down a little bit? 14:12:26

21 A. The amygdala is A-M-Y-G-D-A-L-A.

22 And that is essentially the emotional reaction part of  
23 the brain. That determines whether any given experience coming  
24 through your senses has an emotional component to it. Is it  
25 particularly good, is it particularly bad? And if it's 14:12:42

~~Laurence Miller - Direct Examination~~

1 particularly good or bad, the brain wants you to remember it,  
2 and so it conveys that information to another structure called  
3 the hippocampus, H-I-P-P-O-C-A-M-P-U-S.

4 The hippocampus is essentially the formatting process  
5 of the memory system. It doesn't store your memory, but it 14:13:02  
6 prepares your memory for the -- it prepares your experience for  
7 storage later on. And hippocampi memory consolidation is  
8 something that's happening on an ongoing basis. As I'm  
9 speaking, as we're watching these slides, you're hippocampus is  
10 formatting that memory and linking it up with information 14:13:21  
11 that's already in your brain that may be related to it, for  
12 later storage in parts of the cerebral cortex.

13 Now if something is going on that represents a life  
14 and death emergency, what will happen very often is the  
15 amygdala will highjack the hippocampus. That is, will shut off 14:13:37  
16 the memory system, because the amygdala says, I want all  
17 attention. I want that reticular formation to focus that  
18 person's behavior on what's going to make them survive that  
19 encounter.

20 Q. Okay. Doctor, let me stop you there. 14:13:52

21 First, I'm going to have to ask you to slow down  
22 again. The court reporter is having a hard time.

23 A. I again apologize. And you can remind me as many times as  
24 you need to.

25 Q. I want to understand in laymen's terms what you just said. 14:14:06

~~Laurence Miller - Direct Examination~~

1           You said that the amygdala interacts with the  
2           hippocampus in high stress situations.

3           A.   Well --

4           Q.   Can you elaborate in laymen's terms what you mean by that?

5           A.   The amygdala influences the hippocampus in all situations. 14:14:22

6           Under ordinary conditions it helps the hippocampus determine

7           what is important to remember for later use. But in extreme

8           life and death circumstance, the amygdala basically shots off

9           the hippocampus because it says, I'm not interested in you

10          remembering this circumstance necessarily for later on, I want 14:14:43

11          you to live through it. Because if you're not alive 20 minutes

12          from now, it doesn't matter whether you remember it or not.

13                 And so, again, you've heard examples of individuals

14          who will flee a burning building or burning car or, you know,

15          swerve out of the way of an oncoming truck. When you ask them 14:15:01

16          later on, what did you do to get through the circumstance,

17          they'll shake their head and say, you know, I don't know, I

18          don't remember.

19                 And often that can --

20          Q.   May I stop you again. I'm sorry. 14:15:13

21                 I just want to make sure I understand.

22                 What you're suggesting is that in a high stress event

23          the amygdala takes over and impairs -- potentially impairs the

24          memory of the individual that's in that event?

25          A.   It doesn't impair it after the fact. It kind of shuts off 14:15:31

~~Laurence Miller - Direct Examination~~

1 the formatting process, because it wants your brain to focus on  
2 simply the emergency reactions to help you survive.

3 Q. And how does that impact your memory of an event, a high  
4 stress event. Later on?

5 A. People under a variety of high stress situations, which 14:15:49  
6 they have survived, will often later say, I kind of don't  
7 remember what happened during parts of that information. I  
8 can't recall it.

9 What's interesting is it's not that they can't recall  
10 it, it's not that they learned it and can't get it back, it 14:16:01  
11 never got in in the first place. Because the part of your  
12 brain that is putting you on emergency standby is not letting  
13 your memory consolidation interfere with your emergency  
14 response.

15 And this a fairly universal response in many types of 14:16:18  
16 emergencies, again depending on whether it's military,  
17 civilian, law enforcement or whatever.

18 Q. So what you're saying is that the -- in that event the  
19 brain doesn't actually store the memory because the amygdala is  
20 essentially taking over? 14:16:37

21 A. It's not taking over the whole brain, but it's basically  
22 shut down the memory storage process so that the rest of the  
23 brain can operate more efficiently in helping the person to  
24 survive.

25 And by the way, you don't just see this in people, you 14:16:47

—Laurence Miller - Direct Examination—

1 see it in animals as well.

2 Q. Okay. Go ahead.

3 A. All right. Now while this is all going on, there's a small  
4 little part of the brain called the locus coeruleus. And the  
5 locus coeruleus is a center for secreting a substance called 14:17:02  
6 norepinephrine, otherwise known as noradrenaline, which is a  
7 cousin of the adrenaline we all know about when say, oh, you  
8 know, my adrenaline was up, I'm on adrenaline.

9 And essentially what this does is produce a state of  
10 extremely high arousal. Because remember, if an organism is in 14:17:20  
11 a state of danger, you want that arousal system to keep that  
12 person or organism alert at all times. And this interacts with  
13 the other part of the nervous system called the fight or flight  
14 nervous system, the sympathetic nervous system.

15 And, again, this causes a variety of functions 14:17:40  
16 throughout of the body. It causes respiration to increase, it  
17 causes arteries to constrict. It causes glucose to be  
18 released from the liver. It causes adrenaline, that we know  
19 about, to be released from the adrenal glands. This is  
20 essentially the body's physiological mobilization for a 14:17:58  
21 stressful circumstance.

22 Again, anybody who's been in a car accident, or maybe  
23 been a crime victim, or been frightened in any way, you know  
24 you get this almost panic-like reaction, following which it may  
25 take several minutes or even hours to calm down, while that 14:18:14

—Laurence Miller - Direct Examination—

1 noradrenaline and adrenaline are circulating through your  
2 system.

3 So you've got an emergency situation in which your  
4 senses are trying to operate, your reticular formation is  
5 focussing those senses on what's immediately important, and 14:18:28  
6 defocusing, or tuning out, that which is peripheral and not  
7 important to survival.

8 You've got your limbic system further making this  
9 tradeoff between response and memory. And on top of that,  
10 you've got your sympathetic nervous system putting you on high 14:18:43  
11 alert, on sort of red alert, mobilizing your body for the  
12 stressful response.

13 But there's still one more important component to  
14 this. And that is, during the stressful response, your  
15 hormonal system becomes put into play. And the part of your 14:18:59  
16 brain -- part of your actually endocrine system called the  
17 hypothalamus tells your pituitary to tell the adrenal cortex to  
18 secret a chemical called cortisol.

19 Cortisol may be familiar to people who use a medicine  
20 called cortisone, which is a synthetic variation of it. And 14:19:23  
21 the reason we use that is because it has anti-inflammatory  
22 effect. So we might use it on a bug bite or a rash. But  
23 cortisone does things like mobilize energy from the liver and  
24 cause an anti-inflammatory response.

25 So we've got any kind of emergency situation, you've 14:19:39

—Laurence Miller - Direct Examination—

1 got these various systems operating within the brain, within  
2 the hormonal system. And this is the environment in which an  
3 individual has to -- a human, at least, has to make a decision  
4 on what to do on a split-second basis.

5 But then, what's going to be the result of that 14:19:53  
6 decision? The person then has to respond. And the way we  
7 respond in any kind of voluntary way is through our muscles.  
8 Anything you do has to be -- has to involve ultimately the  
9 contraction of a certain set of muscles, whether it's running,  
10 or yelling, or fleeing, or fighting. 14:20:12

11 And then there are certain systems within the brain  
12 that help you make that -- those behaviors.

13 And, again, I realize some of this may seem like  
14 overload, but it's not really that necessary to remember the  
15 actual names, just to understand that the kind of response 14:20:28  
16 process we're discussing is extremely complex, and has to be  
17 analyzed if we're going to understand what happens in these  
18 actual situations.

19 So getting back to the structure called the basal  
20 ganglia, this is a set of structures that basically stores and 14:20:41  
21 uses automatic sequences of behavior. A lot of times when we  
22 talk about automatic behaviors -- playing a sport, playing a  
23 musical instrument, typing, anything that involves overlearned  
24 skills and motor programs -- this is something that your basal  
25 ganglia does on almost an unconscious level. 14:21:00

~~Laurence Miller - Direct Examination~~

1 We all remember when we learned to do something, we  
2 learned to play a piano, we learned to drive a car. Remember  
3 how complex it seemed the first time you did it? Now you drive  
4 your car without even thinking about it. You can be listening  
5 to your headset, you can be talking to a friend, and you can go 14:21:13  
6 from one place to another and not even realize you're driving  
7 until something unexpected occurs. And then these other  
8 systems may go into play to help you deal with that unexpected  
9 circumstance.

10 So a lot of what we sometimes times call going on 14:21:26  
11 automatic or muscle memory, the memory is not really in the  
12 muscle, it's in this subcortical motor system that stores these  
13 motor preprograms and allows a person to respond automatically,  
14 especially in a stressful situation. And especially so we  
15 don't have to sit there and think of, okay, now what do I do 14:21:43  
16 now? No, if you've trained for something and trained for it  
17 over and over again, when that circumstance occurs we want the  
18 respond to be automatic.

19 That's why fire fighters and emergency room doctors  
20 and paramedics and police officers train and train and train, 14:21:57  
21 because when an emergency occurs, they don't want to have to  
22 stop and think about the next step. They want at least some of  
23 these motor programs to go into play. They want to save the  
24 thinking parts of their brain for any new, unusual or novel  
25 parts that may need further action. 14:22:13



—Laurence Miller - Direct Examination—

1 And, of course, we talked about the cerebellum, that's  
2 what enables you to make your movements very skillful and  
3 coordinated. Without your cerebellum you wouldn't be able to  
4 do things like throw a ball, fire a gun, play an instrument,  
5 and so on.

14:22:30

6 But, of course, that doesn't tell us what you want to  
7 do. Motor movement is actually programmed in certain parts of  
8 the frontal lobes of the cerebral cortex. So you have the  
9 frontal lobe which basically decide, what is my best course of  
10 action. The premotor areas which turn those intentions into a  
11 sequence of movement. And then the motor areas, which takes  
12 those sequence of movements and turns them into actual muscle  
13 contractions. All of which is being coordinated by feedback  
14 from those senses, vision and hearing, that are telling the  
15 motor system how successful its actions are in accomplishing  
16 its goals, and aided by the basil ganglia cerebella systems and  
17 the stress response systems that are determining the direction  
18 of movement, and assessing the outcome.

14:22:50

14:23:07

19 So again, the point here is that in any complex --  
20 actually any ordinary situation, even sort of sitting here and  
21 taking notes and listening to testimony, you're using all of  
22 these symptoms right now. You're just not using them in the  
23 same way you might as if your life was in danger and you had to  
24 make an emergency reaction.

14:23:27

25 So understanding this, the neuroscience of emergency

14:23:41

—Laurence Miller - Direct Examination—

1 response situation --

2 Oh, we forgot one thing. We forgot memory.

3 Because remember, we talked about how following  
4 certain types of events it's often easy to remember some events  
5 and difficult to remember others. 14:23:54

6 Q. And just -- and that's what I was asking before. Maybe I'm  
7 wrong, but does the interaction between the amygdala and  
8 hippocampus impact memory of a situation as well?

9 A. Well, yeah, and I'm going to explain that in the next  
10 couple of slides. 14:24:13

11 You know, typically we think about memory as being  
12 just one thing. But if you think about it, there's different  
13 types of memory. There's short-term memory, there's long-term  
14 memory, there's memory for facts, there's memory for  
15 experiences we've had. 14:24:25

16 But essentially for memory to be usable it has to go  
17 through a certain number much stages. First of all, remember  
18 the attentional mechanism. If you're not paying attention to  
19 something, then you're not going to remember it. A lot of  
20 times people will be distracted because let's say they're 14:24:39  
21 worried about a family crisis they had, or they may be sitting  
22 in the doctor's waiting room waiting for the results of a  
23 biopsy and you're trying to read a magazine and remember a  
24 conversation, you're going to be too preoccupied to even pay  
25 attention to that information. 14:24:55

~~Laurence Miller - Direct Examination~~

1           So, of course, if it doesn't get into your brain,  
2       don't be surprised if later you can't get it out.

3           But even if it does get in, again, that hippocampus of  
4       yours is going to be formatting or consolidating that  
5       information so that it can be stored in the relevant parts of  
6       your brain for you to use later.

14:25:08

7           And memory is stored multiple -- memory traces are  
8       stored multiply throughout the brain. It's not like there's  
9       just a set of file cabinets in different parts of your cortex.

10       In fact, if you study individuals who have had brain injury,  
11       they may have impairment in certain aspects of recall, but they  
12       don't simply lose chunks of memory based on which part of the  
13       brain is damaged.

14:25:22

14       So the brain kind of stores your memories in a kind of  
15       holographic type of way. And, of course, this is adaptive.

14:25:37

16       Remember, your very identity, who you are as a person, is  
17       dependent on your experiences, what you remember about yourself  
18       as a person. And if you lose that ability, you lose a certain  
19       amount of your own self identity.

20       But, again, even that doesn't do you much good if you  
21       can't get into that file cabinet and get the memory out. And  
22       so retrieval means, now that I know this -- now that I have  
23       this information, I can retrieve it. And retrieval memory can  
24       be extremely precise.

14:25:51

25       What I often do in my classes is I'll ask the students

14:26:06

—Laurence Miller - Direct Examination—

1 two questions, I'll ask one student, what's the capital of  
2 France? And I'll ask the other student, what is your mother's  
3 maiden name. And, of course, they immediately come up with the  
4 answer.

5 And I'll say, what are the chances you were thinking 14:26:18  
6 about those two things before I asked you? And when I asked  
7 you those two pieces of information, you instantaneously were  
8 able to, quote, unquote, Google it and come up with that.

9 So your memory retrieval is actually quite specific as  
10 long as the information has been inputted, has been 14:26:32  
11 consolidated, stored, and is able to be retrieved.

12 I'm not going to go into detail about the various  
13 different ways of retrieval, but all of these put together kind  
14 of account for some of the disturbances we see in memory  
15 consolidation, in perception, in thinking, and in behavior 14:26:50  
16 during emergency situations.

17 A lot of this is coming from my textbook that I use  
18 for my classes.

19 But this explains why in -- again, applying this now  
20 to specifically officer-involved shootings, these are phenomena 14:27:06  
21 that have been found in research to occur in officers that have  
22 been involved in such shootings. Again, in cases specifically  
23 not under contest, not being disputed, not under any kind of  
24 investigation, but just routine officer-involved shooting  
25 cases. 14:27:23

—Laurence Miller - Direct Examination—

1           And these are also some of the phenomena that I have  
2           found when I've done officer-involved shooting post incident  
3           evaluations in those officers that were referred to me by the  
4           agencies that I work for.

5           Q. Let's keep it on this slide, and I want to go through these 14:27:33  
6           distortions.

7           Had your studies and in your evaluations of officers  
8           involve -- officer-involved shootings, tell us about time  
9           perception, slow motion. What is that and have you seen it  
10          before? 14:27:51

11          A. Very common response. And you have to understand, a lot of  
12          these officers, if this is the first time this has happened to  
13          them, they're often baffled by why this is happening. Some of  
14          them are even reluctant to tell me about it because it seems  
15          kind of weird, why did I have this kind of reaction? They 14:28:05  
16          don't want me to think that they're crazy.

17          And that's when I explain to them that these are, in  
18          fact, normal responses under kind of abnormal circumstances.

19          So to answer your first question, many officers will  
20          perceive the event as being slowed down, they'll say things 14:28:19  
21          seemed to happen in slow motion. It's almost as if the brain  
22          is slowing time perception down in order to give the person  
23          time to react.

24          And, again, this doesn't only happen in shooting  
25          cases. Accident victims will describe this. Crime victims 14:28:38

—Laurence Miller - Direct Examination—

1 will often describe this, where they escape from an assailant,  
2 how things seems to slow down in order to give them time to  
3 respond.

4 Well, the brain has amazing coping mechanisms to help  
5 people deal with emergencies.

14:28:52

6 Q. Can I ask you another question?

7 Roughly how many law enforcement officers have you  
8 evaluated that were involved in officer-involved shootings?

9 A. At this point it must be over 100.

10 Q. Okay. So tell us about event compression and tunnel  
11 vision.

14:29:05

12 A. We're going to get back to event compression, because that  
13 sort of goes with the time perception. And it's kind of a  
14 paradox, because the same officers -- now remember, not every  
15 single one of the phenomenon on this list occurs in every  
16 single officer. Many officers will have maybe one or two of  
17 them, or in some cases they may not have any of them. But many  
18 officers, the overwhelming majority will experience at least  
19 one or two.

14:29:18

20 Event compression is kind of like the opposite. Even  
21 though during the event time seems to have slowed down, the  
22 time the event took place in retrospect is often perceived to  
23 be shorter than it was. You'll often hear officers say, you  
24 know, it seemed like the whole thing was happening in slow  
25 motion. But later on when I asked my friends, how long did

14:29:33

14:29:52

~~Laurence Miller - Direct Examination~~

1 this take, they said, oh, the thing took about 15 minutes. And  
2 to me it seemed like maybe two minutes.

3 So again, what's showing is what we ordinarily think  
4 of as a unitary capacity, like you can kind of judge how fast  
5 time passes, under unusual circumstances, that perception can  
6 change. 14:30:07

7 Probably one of the most common types of sensory  
8 distortions that occurs is something called visual hyperfocus  
9 or tunnel vision. And that is where in this case the officer  
10 will be focused on the threat that they perceive. In which 14:30:23  
11 case it's usually the assailant that they're perceiving, the  
12 threat that's being posed to them. And things like gunshots  
13 fired by people several feet away, shouts taking place, other  
14 events taking place in the periphery will be tuned out. It's  
15 not being tuned out because they can't hear it. It's being 14:30:42  
16 tuned out by that very reticular formation brain mechanism that  
17 is saying, this is not important to think about right now.  
18 What's important is, you've got somebody pointing a gun at you.

19 Again, not just to police officers. The second most  
20 common frequent population we see this tunnel vision phenomenon 14:30:59  
21 is in crime victims. Many crimes detectives are often  
22 frustrated because they're trying to get a victim to identify  
23 an assailant. And they'll say, what did the perpetrator look  
24 like? And the victim will scratch their head and say, you  
25 know, I don't know. Well, can you tell me anything about them? 14:31:14

~~Laurence Miller - Direct Examination~~

1 Tell me their height, tell me their race. And they'll often  
2 say, I don't know.

3 How can you not know a person that was staring right  
4 at you? Well, I wasn't looking at their face. I was looking  
5 at that piece of metal pointed at me, and I must have tuned  
6 everything else out. 14:31:26

7 And again, even though police officers are better  
8 trained than civilians in dealing with this threat, it's very  
9 common for officers to later report that they don't remember  
10 key features of what took place. It's really not that they  
11 don't remember it, they weren't receiving it or tuning into it  
12 in the first place. 14:31:40

13 And to a somewhat lesser extent you see the same thing  
14 with hearing. Tunnel hearing or auditory exclusion. Typically  
15 what happened is, it's not complete tuning out, but a common  
16 response is, officers will report gunshots as being muffled or  
17 voices as being muffled. 14:31:57

18 But, again, the kind of common sense  
19 neurophysiological explanation is that the nervous system is  
20 focusing that person on the immediate threat. During those few  
21 seconds where that organism's life is in danger, whether it's a  
22 rabbit being caught by a fox, or a police officer being  
23 threatened by a gun, that organism, that subject, is going to  
24 do whatever it has to to survive, and nothing else is going to  
25 matter at that moment. Because if they don't survive then, in 14:32:12  
14:32:29



—Laurence Miller - Direct Examination—

1 effect, nothing else does matter.

2 The next thing on the slide is getting to what we were  
3 talking about before with that limbic system mechanism. And  
4 again, very commonly -- and this does occur in ordinary  
5 officer-involved shootings, but it's probably a source of 14:32:45  
6 contention in many of the contested shootings. And that is  
7 what the amygdala often does, what the nervous system often  
8 does, in order to enable person to survive is to actually  
9 magnify the perceived threat of the circumstance.

10 And so many cases will involve situations that in 14:33:02  
11 retrospect, upon observation of third parties reviewing it, and  
12 going over witness statements, or in some cases visual images,  
13 it may seem pretty clear that the subject did not pose as great  
14 a threat as the officer claimed that it did.

15 The question isn't, why did that officer exert that 14:33:20  
16 level of counter force. And in many cases they'll say things  
17 like, the subject was lying down but I thought that they were  
18 standing. Or the subject was a single person but I thought  
19 they were multiple. Or the subject had -- come to find out  
20 they had a power tool in their hands, and the officer perceived 14:33:39  
21 it as a weapon.

22 There's actually been studies on this, experimental  
23 studies involving both police officers and civilians in which,  
24 under emergency circumstances -- and, again, often in  
25 conditions of impaired environmental circumstances, poor 14:33:52

~~Laurence Miller - Direct Examination~~

1 lighting, lots of confusion going around, it is very common to  
2 mistake what later appears to be a less lethal situation for  
3 one that in the officer's perception at that time was perceived  
4 as lethal.

5 And, again, we've all had experiences like this. 14:34:11  
6 We've all had experiences of thinking something was far worse  
7 than it was, and going back and looking at a video on a  
8 cellphone or a witness's account and saying, whoa, I thought  
9 that was really terrible, maybe it wasn't that bad.

10 And again, this is nature's way of trying to save you. 14:34:24  
11 Nature's way of saying, when in doubt, act. Either escape from  
12 the threat, which is the flight part, or address the threat,  
13 which is the fight part. And your job is simply to live  
14 through it.

15 And occasionally, even though in the overwhelming 14:34:39  
16 majority of cases, the amount of counter force used is going to  
17 be appropriate to the threat, if the threat is magnified,  
18 because your brain is trying to save you, then in some cases an  
19 adverse outcome may occur.

20 But, again, those are the tragic but fortunately rare 14:34:55  
21 circumstances where this occurs. Not because the behavior was  
22 not in any ill conceived way necessarily, but because that  
23 person thought they were at the moment responding to a threat  
24 that they were facing. And it's only in retrospect by the  
25 benefit of hindsight that we come to realize it may not have 14:35:12

—Laurence Miller - Direct Examination—

1     been as great as it was.

2             The next phenomenon, which is motor programs going on  
3     automatic, this is what often officers will describe that they  
4     were almost like watching themselves go through the motions of  
5     taking cover, firing, issuing commands and so on. It  
6     was -- and, again, it's not like any kind of zombie-like fugue  
7     state --

14:35:28

8     Q. I was going to ask you about that. You're not saying that  
9     a law enforcement officer involved in a shooting isn't  
10    formulating the intent to take action? You're not claiming  
11    he's -- he doesn't possess the intent to do what he's doing,  
12    are you?

14:35:44

13    A. No, I mean, this is not like an insanity defense where  
14    you're saying that the person really didn't know what they were  
15    doing or didn't know the wrongfulness. They are absolutely  
16    taking the intent to perform the action. But the action that  
17    they're taking is what they perceive to be appropriate based on  
18    their then analysis of the threat that they're facing.

14:35:58

19             The automatic part is -- and when I tell the officers,  
20    this is why they make you train and train and train, you want  
21    your ability to do these things to be automatic. And, again,  
22    not necessarily in a deadly force encounter, you want a  
23    firefighter to know how to get into a burning building and  
24    rescue a child, you want an airline pilot to know what type of  
25    action to take to avoid a plane crash.

14:36:16

14:36:32

**Laurence Miller - Direct Examination**

1           These are all things we all train for as professionals  
2           because we want to be able to do some things automatically so  
3           we can use the rest of our brain to deal with any extraneous or  
4           unusual circumstance.

5           But unfortunately, in a small and rare number of cases  
6           when that automatic response occurs in response to a heightened  
7           threat circumstance, in retrospect we realize the outcome has  
8           been an adverse one.

9           Q. Can I just -- to make sure I understand this.

14:36:45

14:37:02

10           So the training -- when you talking about going on  
11           automatic, you're talking about an officer falling back onto  
12           his training, how to respond to this or how to respond to that.  
13           And that impacts how the brain processes information in a high  
14           stress environment. Is that what you're saying?

15           A. I'm not sure I completely understand the question.

14:37:23

16           Q. It wasn't a very good question. So let me try again.

17           What I think you're saying is that when you say going  
18           on automatic, the officer's relying on prior training, use of  
19           force training or how to respond to a deadly force threat; is  
20           that right?

14:37:47

21           A. Yeah, that's exactly right.

22           You know, moving on, we've talked about memory a few  
23           times during my testimony. And the question often is, you  
24           know, how can you remember one thing so vividly, almost like a  
25           flashboard memory, and something that happened, even a few

14:38:03

—Laurence Miller - Direct Examination—

1 seconds of it, is a total blank.

2 And when you look at these circumstances, again,  
3 whether you're dealing with the research literature or just in  
4 clinical experience, the parts that tend to be not remembered,  
5 the parts that tend to be unable to recall later, which the 14:38:17  
6 officers themselves often find so baffling, is because the  
7 brain mechanism for memory, that hippocampi memory system has  
8 been put on standby. The remember you don't remember it is  
9 because you didn't form the memory in the first place.

10 You know, a kind of whimsical example is, we've all 14:38:38  
11 had a little too much on New Years Eve, and the next morning,  
12 along with the headache, we find that there are certain gaps in  
13 what happened the previous night before. Well, it turns out  
14 that the alcohol is basically a central nervous system  
15 depressant, but one of the brain structures most sensitive -- 14:38:57  
16 two of the brain structures, interestingly enough, most  
17 sensitive to the alcohol are the cerebellum. And that's why  
18 when people have a little bit too much they have trouble, let's  
19 say, coordinating themselves. And the other structure is the  
20 hippocampus. And that accounts for the fact that those 14:39:11  
21 individuals literally can't remember what they did during those  
22 altered states, because information wasn't being processed in  
23 the first place. And yet in those states people will describe  
24 them as talking, laughing, dancing, interacting with people.

25 So how could a person go through these relatively 14:39:29

~~Laurence Miller - Direct Examination~~

1 complex behaviors and then have no memory whatsoever? Again,  
2 the same thing that's happening in an emotional basis during  
3 the life-threatening circumstance in this case is happening on  
4 a chemical basis through the use of ethanal.

5 But the principle is the same. You're not going to 14:39:44  
6 later recall something if you didn't form the memory to begin  
7 with. And the things that cause the memory formation, the  
8 memory formatting system to get shut down, are some extreme  
9 situation, an extreme chemical situation and/or an extreme  
10 stress situation. 14:40:02

11 And along those lines, we talked about this chemical  
12 called cortisol that's secreted in stressful situations. We  
13 know that cortisol, as a chemical, binds to cells in the  
14 hippocampus, and actually can further suppresses memory  
15 formation. 14:40:18

16 So, again, these kind of sort of strange phenomena,  
17 when you study them from a scientific point of view, there is a  
18 basis for it, there is a science behind it. It doesn't mean  
19 that it explains every such circumstance, but it does provide a  
20 kind of neurophysiological, neuropsychological rationale for 14:40:31  
21 some of these phenomena that often seem so baffling like, you  
22 know, where did this come from?

23 During an emergency situation your brain is basically  
24 dedicated to helping you survive. Anything else, whether it's  
25 an extraneous perception, whether it's an unneeded memory, is 14:40:48

~~Laurence Miller - Direct Examination~~

1 going to be pushed aside. The minute that emergency, the  
2 minute that life-threatening emergency is perceived to be  
3 passed, these functions may come back to normal.

4 During those emergency situations you may perceive the  
5 threat to be greater than it is, and react accordingly. And 14:41:05  
6 only later, when some of these other systems come back on line,  
7 do you realize that perhaps tragically and unfortunately the  
8 action was not the appropriate one based on what we now can see  
9 are facts of the situation, but what your brain at that time  
10 was unable to process. 14:41:24

11 And overriding all of this, there are the  
12 environmental conditions under which this occurs. So if you've  
13 got a noisy situation, you've got poor lighting, you've got  
14 several things happening at once, this adds yet another level  
15 of confusion to an already extremely stressful and confusing 14:41:40  
16 circumstance.

17 So, again, what I'm doing is providing some context  
18 for why an individual -- perfectly healthy individual,  
19 well-trained individual in a life threatening situation under  
20 certain conditions can misperceive and misremember the 14:41:55  
21 circumstances and behave in a way that only by 20/20 hindsight  
22 do we realize turned out to have an unfortunate outcome.

23 Let me see if I have another slide.

24 Yea, I mean this is -- if you watch Hollywood movies  
25 and TV shows, it's easy to get the impression that police 14:42:14

**Laurence Miller - Direct Examination**

1 officers in a very casual, cavalier way fire their weapons and  
2 then sort of walk away like nothing happened. But in the  
3 experience of most police psychologists, including myself, most  
4 officers engaged in a deadly force encounter, especially one in  
5 which there was a fatality, do have an emotional reaction to  
6 it.

14:42:33

7 I mean, they're trained for this, they're prepared for  
8 this. This is their duty, this is their job. In dangerous  
9 circumstances most people run away from danger, their job is to  
10 run toward it and defend life. And if they have to take a  
11 life, they're not happy about it. They do regret it. Some  
12 more than others.

14:42:46

13 In some rare cases the fact of having to take a life  
14 has such an overwhelmingly traumatic effect they have to leave  
15 law enforcement completely. But that's the overwhelming  
16 exception. Most will have a reaction that last about two,  
17 three, four days, many consist of the following that are on  
18 this slide.

14:43:02

19 For a while, usually within the first 12 hours, eight  
20 to 12 hours, what's called an adrenaline dump. That is, after  
21 the emergency is over, they're still kind of on high alert. It  
22 takes a while for this adrenaline we talk about to be  
23 metabolized. So officers will be walking around feeling like  
24 they just had 12 cups of coffee. And eventually that tends to  
25 die down.

14:43:15

14:43:31



~~Laurence Miller - Direct Examination~~

1 Sleep is almost always impaired. They'll have  
2 difficulty falling asleep, they'll have choppy sleep. During  
3 that sleep they may have nightmares that may relate to the  
4 incident that happened. Often they'll replay their event in  
5 their mind over and over again. One of the things that will be 14:43:43  
6 keeping them awake at night is doing the instant replay,  
7 obsessively ruminating, what could I have done? Should I have  
8 done this? Should I have done that?

9 Sometimes they'll become very obsessed with family  
10 safety. Can I go out for the evening, Dad? No, you're staying 14:43:59  
11 home with the door locked. It's almost like having just  
12 survived a deadly force encounter we sort of project that sense  
13 of vulnerability on to members of our family.

14 And, again, fortunately these reactions don't last  
15 very long in most of these officers. 14:44:13

16 Well-meaning friends, family members will say, do you  
17 want to talk about it? Please tell me what happened. And the  
18 officer will basically shut down and say, no, I don't want to  
19 talk about it. Because, look, having just lived through all  
20 this, the last thing I want to do is rehash it. They're 14:44:26  
21 already spinning is over and over and over in their mind.

22 Actual clinical syndromes, like depression, or PTSD,  
23 posttraumatic stress disorder, these occur relatively rarely.  
24 Remember, police officers go through a selection process, and  
25 you are picking a kind of subsample of relatively resilient men 14:44:42

~~Laurence Miller - Direct Examination~~

1 and women who are going to be able to withstand a stressor like  
2 this. But it doesn't mean they're made of stone, and it  
3 doesn't mean that they're not going to have any kind of  
4 reaction.

5 And a lot has to do with the reactions of their 14:44:55  
6 friends, their peers, their coworkers, how much support they  
7 feel they're getting from their department, and to what extent  
8 the incident itself is judged to be justified or not.

9 Q. Okay. Let me ask you some questions that hopefully will  
10 recap in my mind some basic understandings about what you've 14:45:15  
11 told us.

12 Is not hearing a gun go off while it's fired or  
13 hearing a muffled sound consistent with your experience in  
14 involving officers and officer-related shootings?

15 A. Yeah. I mean, that was just one of the things on the 14:45:39  
16 slide. That's fairly -- any kind of sensory inclusion is  
17 probably the most common type of reaction that occurs during  
18 the critical incident itself.

19 Q. What about not knowing how many rounds were fired in a  
20 shooting event? 14:45:54

21 A. That's so common as to almost be typical. A lot of -- you  
22 know, officers are trained that when you have a deadly threat,  
23 you know, you don't use force unless it's necessary. But if it  
24 is necessary, then you have to use as much force as you need to  
25 to neutralize the threat. And so officers will typically 14:46:10

~~Laurence Miller - Direct Examination~~

1 continue firing until they see that threat neutralized.

2 They're not standing there and counting the number of shots  
3 that are fired. It's not so much a sensory distortion as the  
4 fact that they're not concerned with counting the bullets,  
5 they're concerned with eliminating threat to life.

14:46:25

6 Q. What about not knowing that you've ejected a magazine  
7 during a shooting event?

8 A. It depends when that occurs. If that's -- if you're  
9 shooting at a subject that you believe is threatening your  
10 life, you're about to be killed, and your brain has gone on a  
11 state of emergency override, and you've trained for this, and  
12 so you don't have to be taught on the spot how to change your  
13 magazine, then that may fall into this kind of automatic muscle  
14 memory type of response.

14:46:40

15 So I've heard this many times, whether it's changing a  
16 clip, changing a magazine, reloading a revolver, even moving  
17 from one place to another in a tactical way, the officer will  
18 not even remember how they got from one place to another.

14:46:56

19 Interestingly enough, as soon as the actual emergency  
20 threat to life is over, then some of those memories start to be  
21 formed again, and that's later able to be recalled.

14:47:11

22 Q. So it's common for officers to remember some of the details  
23 in an event, but not be able to remember all of them, certain  
24 parts?

25 A. You know, if there's a gradient of memory suppression, the

14:47:29

—Laurence Miller - Direct Examination—

1 most severe memory suppression is going to occur during those  
2 moments when the threat to life is greatest.

3 And as the actual -- even though it's still an  
4 uncontrolled situation, it may not be over, but as that actual  
5 threat to life diminishes, again, some of these temporarily 14:47:47  
6 suspended brain mechanisms come back on line. Your brain  
7 doesn't want to turn everything off and keep it off, it just  
8 wants to be able to focus all of your attention, resources,  
9 capacities and energies towards enabling you to live through  
10 the encounter. Once it becomes clear that at least I'm not 14:48:03  
11 going to die at this moment, then some of these systems again  
12 come on line, and that's what you're going to recall later on.

13 Q. What about the idea that you may not recall whether you  
14 gave verbal commands or not?

15 A. I'm sorry, I didn't hear the last thing you said. 14:48:22

16 Q. You may not recall whether you gave verbal commands or not.

17 A. You know, part of behavior, like using a tactical response  
18 or changing a magazine, involves -- again, this is what  
19 officers train for. They're trained for issuing verbal  
20 commands. 14:48:39

21 Many officers won't recall verbal commands that are  
22 issued by others. Many officers -- I won't say "many," a good  
23 number of officers will not recall commands that they issued.  
24 And you know why? Because it's so routine that it's not  
25 something they're paying conscious attention to. It's sort of 14:48:50

—Laurence Miller - Direct Examination—

1 like a firefighter saying, well, I don't remember unfolding the  
2 hose. Well, because that's such a common routine part of fire  
3 fighting that they're not going to remember that specific  
4 action that they took. Or if you get into your car, you're  
5 going to say, you know, I don't remember turning on the 14:49:05  
6 ignition. Well, you're not going to remember turning on the  
7 ignition because that's something you do so routinely that  
8 it's not something you ordinarily pay conscious attention to,  
9 except in those early days when you first learned to drive the  
10 car. 14:49:19

11 So certain of these automatic responses tend not to be  
12 remembered because they're such routine things that we do  
13 they're not consciously paid attention to.

14 Q. Okay. So these things that I've just gone over with you,  
15 regarding not hearing the gun, how many rounds you fired, all 14:49:34  
16 that, are these normative responses? Are these typical types  
17 of responses that you see in officer-involved shooting?

18 A. Well, they're typical responses you see in emergency  
19 reactions of any kind. That's what I mentioned before. It's  
20 not just specific to law enforcement or military. You see it, 14:49:52  
21 again, in accident survivors, crime victims. These are  
22 phenomena that are reported across a range of emergency  
23 situations. Because we all kind of have the same brain.

24 So, you know, in as much as an officer-involved  
25 shooting situation, or let's call it a deadly force encounter, 14:50:07

~~Laurence Miller - Cross-Examination~~

1 where the officer is responding to what he or she believes is a  
2 deadly threat, this is as much an emergency as a plane crash,  
3 or a car wreck, or a crime victimization, or escaping from an  
4 earthquake, or any other situation where you feel your life is  
5 in imminent threat.

14:50:23

6 MR. CHAPMAN: Thank you, Doctor.

7 I have no further questions.

8 THE COURT: Whenever you're ready, Miss Feldmeier.

9 MS. FELDMEIER: Thank you.

## CROSS-EXAMINATION

14:50:37

10 BY MS. FELDMEIER:

11 Q. Hi, Dr. Miller.

12 A. Good afternoon.

13 Q. Let's start with some of the -- I don't know what to group  
14 them as. But in the visual hyperfocus, the threat  
15 magnification, the going on automatic, that list --

14:50:47

16 A. Do you want to actually go back to that slide?

17 Q. No, I don't, it's okay. I just want to talk about them --

18 A. I don't blame you. That's what my students say.

19 Q. You have probably seen that slide more than anybody, so I'm  
20 sure you're rather sick of it yourself.

14:51:02

21 A. I got it.

22 Q. Okay. So, anyway, let's talk about threat magnification.

23 How do you evaluate that when you have a client come  
24 in and they are recounting a situation, and they seem to really  
25

14:51:16

~~Laurence Miller - Cross-Examination~~

1 be magnifying that threat? How to you evaluate that? How do  
2 you test that?

3 A. It's basically through self report. Very often the  
4 individuals will say, again, in retrospect, that the threat  
5 seemed -- the person seemed to be standing up when they were 14:51:35  
6 lying down, there seemed to be two or three people where there  
7 was one person.

8 When you say how do I evaluate it, you're saying how  
9 do I evaluate what about it?

10 Q. How do you test that? You know, it's possible in the 14:51:47  
11 situation like the one we're in now with a criminal case where  
12 it would be in a defendant's best interests to come in and  
13 magnify the threat for you. Do you just take everything that  
14 that individual says at face value or do you test it?

15 A. Well, the way I assess it is if somebody -- in a contested 14:52:05  
16 case --

17 Q. Yes.

18 A. If somebody is telling me something that only occurs in a  
19 contested case, that almost seems to be custom-made for that  
20 particular circumstance, then, of course, I'm going to be 14:52:17  
21 suspicious and skeptical of it.

22 But if what a person tells me happened is consistent  
23 with hundreds of cases in which there was no ulterior motive  
24 for saying it, this was reported in individuals in whom,  
25 whether the threat was magnified or not, the deadly force 14:52:31

~~Laurence Miller - Cross-Examination~~

1 incident turned out to be justified, then I have to say it's  
2 consistent with the universal response that people have.

3           You know, you can never prove a negative. You can't  
4 prove that somebody is saying something that's not true. But  
5 if it's consistent with cases in which there is no ulterior 14:52:45  
6 motive to make it up, then I tend to err on the side of  
7 believing it. If somebody comes up with an either unusual,  
8 bizarre or unfamiliar type of symptom then, of course, my level  
9 of suspicion is going to rise.

10 Q. So in this particular case did anyone ever tell you that 14:53:02  
11 the stones were coming from 70 to 90 feet away from the  
12 defendant and then he felt this threat?

13 A. I guess -- I mean, as long as you're raising the  
14 question about -- you want me to address this specific case --

15 Q. Well, yeah, in this particular case when you evaluated the 14:53:16  
16 defendant, did anyone tell you these stones were coming from  
17 anywhere from 70 to 100 feet from the defendant, and he is  
18 claiming this heightened threat?

19 A. My understanding, in interviewing this particular agent,  
20 was the threat situation, at which point he fired, was his 14:53:35  
21 belief that there was a second rock thrower who was imminently  
22 about to threaten him and his fellow agents.

23           It wasn't so much the weight of the rocks or the  
24 distance of the rocks, but the fact that he felt that there was  
25 somebody about to lob a missile in his direction which could be 14:53:58



~~Laurence Miller - Cross-Examination~~

1 threatening --

2 Q. But did he tell you that that missile was coming from 70 to  
3 90 feet away from him, 14 feet below ground grade level?

4 A. No.

5 Q. Okay. So you mentioned earlier that the greatest memory  
6 suppression is during the initial threat. So it tends to be  
7 when that person is -- you know, the IED is exploding in front  
8 of you, the Molotov cocktail is coming across the riot line  
9 right at you; right? That's what you term the initial threat;  
10 right?

14:54:11

14:54:32

11 A. Well, not so much initial, but during the period of the  
12 most acute danger.

13 Q. Okay. So in this particular instance, the defendant  
14 described to you actually remembering more during the initial  
15 threat, and then can't remember anything after. Does that call  
16 into question his -- the memory suppression issue?

14:54:47

17 A. Can you give me an example that you're citing?

18 Q. Yes. For example, in this particular case he calmly walks  
19 for five seconds up to the fence, and this is the initial  
20 threat. He sees through the bollards, and he sees the two  
21 rockers. He moves to the second bollard and he fires off three  
22 shots. This is your initial threat. He remembers -- he  
23 doesn't remember how many shots, but he remembers doing that.

14:55:04

24 Then he breaks for eight second and walks 45 feet up  
25 the fence line. And now he has what he calls a grey area.

14:55:21

~~Laurence Miller - Cross-Examination~~

1           Doesn't that exactly flip what you said earlier, that  
2           the greatest memory suppression is usually during the initial  
3           threat?

4           A.   You know, any kind of universal response there are going to  
5           be some exceptions to.   So, yes, I mean, technically it does  
6           flip it.   It would really have to get into what was in that  
7           agent's mind during the time he was moving down the line of  
8           that fence.

14:55:36

9           Q.   Have you ever had any clients basically tell you about what  
10          would be a hallucination?   In this particular case we have  
11          heard -- we've seen the empty street, but the defendant claims  
12          he saw a second rocker standing there, eight seconds after he  
13          had fired shots and everybody had run for the hills, he says he  
14          saw a second rocker.

14:55:51

15          Have you ever heard any of your clients tell you about  
16          hallucinations like that?

14:56:06

17          A.   I don't know that I'd call it a hallucination.

18          Q.   What would you call it?

19          A.   Well, technically it would be a hallucination in the sense  
20          that the definition of a hallucination is a false perception.  
21          And although unusual, I think I mentioned before when I was on  
22          direct, that occasionally police officers will say they saw  
23          multiple suspects when there was only one.   It's not the most  
24          common reaction, but it's not unknown.

14:56:17

25          Q.   Wouldn't that reaction have occurred during the initial

14:56:36

~~Laurence Miller - Cross-Examination~~

1 threat though, and not eight seconds later, ten seconds later?

2 A. I'm not sure what you mean.

3 Q. Well, okay. So you go there and you see these two rockers,

4 and then we go 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008,

5 and all of a sudden this hallucination of a second rocker pops 14:57:00

6 up in the street. Is what these people have reported to you,

7 or have they reported more, I went there, I thought I saw three

8 rockers and there were really only two, in that initial --

9 A. Well, in my experience this is the first case that involves

10 rocks, so I can't really call on precedent. 14:57:18

11 But, again, when we talk about what is perceived as

12 the most acutely threatening circumstance, we're trying to

13 judge what's going on internally in that agent's mind, as

14 opposed to what we're seeing in retrospect.

15 So, again, I'm hypothesizing, and I don't want to play 14:57:33

16 mind reader. But if I'm moving down the line, and all I'm

17 thinking is, is there somebody there waiting to kill me, then

18 yeah, you can bet my senses and my perceptions are going to be

19 heightened. And the first stimulus that I see might result in

20 this what you're calling a multiplicative hallucination. 14:57:51

21 So again, does every single instance follow every

22 plan? No. Nothing is like that in science or medicine or

23 anything else. But the overall -- the overall message, I

24 guess, is that under acute states of stress there are going to

25 be misperceptions. 14:58:06

~~Laurence Miller - Cross-Examination~~

1 Q. And in your experience do people have these grey areas or  
2 blackouts for a period of 29 seconds?

3 A. It's usually within a few seconds. It can be as long as a  
4 minute. But usually it involves seconds, usually not more than  
5 a minute. But 29 seconds is on the long side, but it's not  
6 unheard of. 14:58:21

7 Q. Of having absolutely no idea what that person did during  
8 that 29 seconds?

9 A. Like I say, it's possible. If it was 29 minutes, I would  
10 be extremely skeptical. 14:58:33

11 Q. Now we're talking in an extreme life-or-death situation the  
12 amygdala shuts down, and then shuts off the memory imprinting  
13 process. And you used the word extreme life or death. Is this  
14 going to be common in a situation involving for, like I just  
15 hypothesized, a rock being thrown at you from 90 feet away? 14:58:59

16 A. Now that you mention it, it's kind of redundant. Life and  
17 death by definition is extreme.

18 I've never been -- had a rock thrown at me, so I'm not  
19 sure how I would react.

20 Q. You've never been in a snow ball fight? 14:59:13

21 A. A snow ball is probably not a rock.

22 Q. Back where I grew up they put rocks in them sometimes.

23 A. But, you know, the point is, what the threat actually is,  
24 is something that's subjective. I mean, you often see this in  
25 other cases, so let's forget rocks for a moment and talk about 14:59:30

~~Laurence Miller - Cross-Examination~~

1 other cases of officer-involved shootings.

2 Something that a third party looks at in a video, a  
3 suspect raises a toy gun, or a power tool, or a cellphone --  
4 we've had a case like this just recently. And somebody says,  
5 how could anybody possibly mistake this for a weapon? How 14:59:47  
6 could anybody think this was a deadly threat?

7 If you're primed by all the physiological systems  
8 we've just described, then there's a good chance that cellphone  
9 or toy is going to look like a real gun. And your motor memory  
10 is going to kick in, and you're going to fire that weapon. And 15:00:03  
11 you may have --

12 By the way, I'm not suggesting that these reactions  
13 occur in everyone. There are plenty of officers who go through  
14 the same thing and their recollection is absolutely fine. So  
15 no particular phenomenon -- there's no such thing as all or 15:00:19  
16 nothing in any aspect of science. It's a bell curve. You're  
17 going to have some officers who have this to a much greater  
18 degree than others, and some who don't have it at all.

19 Q. Exactly.

20 A. But it's basically what the officer perceives at that 15:00:28  
21 moment as being a life and death threat. For some it might be  
22 moving down the line waiting for the next rock. For some it  
23 may be the first rock, for some it may be a toy gun. But  
24 that's going to be fairly individualized.

25 Q. And usually it's life or death, not just getting hurt. 15:00:41

~~Laurence Miller - Cross-Examination~~

1 A. Well, again, if somebody started throwing rocks at you in  
2 this courtroom, and they were landing around you, and  
3 unfortunately, just saying, they happen to hit co-counsel and  
4 you turned around and he said, ouch, I've been hit, you'd be  
5 pretty scared. You would probably run for the door.

15:01:01

6 But if you're a law enforcement officer, you're not  
7 supposed to run for the door, you're supposed to run towards  
8 the danger and neutralize it. So you know you're putting  
9 yourself in harms way to neutralize that threat, where other  
10 people might run away.

15:01:15

11 But, again, are you going to perceive those rocks as  
12 innocuous or as a potential threat to life?

13 Q. As a law enforcement officer, you're only supposed to run  
14 to the threat if it is, in fact, necessary to suppress the  
15 threat; correct?

15:01:25

16 A. That goes without saying, yes.

17 Q. Yes. It has to be necessary.

18 A. Yes.

19 Q. So if there's no enforcement action going on, there's no  
20 need to go kill a human being in order to stop what you  
21 perceive to be a threat?

15:01:32

22 MR. CHAPMAN: Objection --

23 MS. FELDMEIER: I'll withdraw the question.

24 Okay. Let's move on.

25 BY MS. FELDMEIER:

~~Laurence Miller - Cross-Examination~~

1 Q. In this particular case, before you interviewed the  
2 defendant, I saw you had a list of reports you reviewed. Did  
3 you have an opportunity to see any of the photographs of the  
4 area?

5 A. You know, I'm sure I was supplied photographs in the 15:01:55  
6 records supplied to me, but my ability to fruitfully analyze  
7 them as a nonexpert in forensic photography was probably  
8 limited. So I didn't really pay that much attention to them.

9 Q. Okay. What about the crime scene, did you go out and visit  
10 it or see what the difference in elevation was? 15:02:12

11 A. No, I did not.

12 Q. And were you aware that there is a 22-foot bollard steel  
13 fence between the defendant and the victim in this case?

14 A. Well, Agent Swartz basically described that to me.

15 Q. Okay. And that there was a 14-foot drop from where the 15:02:29  
16 agent was standing to where the victim was standing on the  
17 street below?

18 A. Yes.

19 Q. Okay. And did you watch the video of this event?

20 A. Well, I watched the video today in court. 15:02:40

21 Q. Okay. So you had an opportunity to see then that there  
22 was -- from the first shot to the last shot there was a lapse  
23 of 34 second. And we've gone over all of the various things  
24 that have gone on in between.

25 You've also heard in court today that the defendant 15:02:55

~~Laurence Miller - Cross-Examination~~

1 was trained as a firearms instructor. So he's well trained;  
2 right?

3 A. I would assume a firearms instructor knows about firearms.

4 Q. Okay. And there was nothing in your -- what is the  
5 difference then between an individual who wants to come in and 15:03:10  
6 say, I don't want to remember that memory because it was so  
7 horrible what I did, versus the one who claims a grey area?  
8 And how do we as lay people test that?

9 A. Well, you know, you're talking about somebody who will  
10 willfully forget potentially incriminating evidence. And the 15:03:31  
11 answer is, you can't prove a negative. All I can say is,  
12 the -- again, if we're addressing this particular case, the  
13 types of cognitive, perceptual and memory phenomena that were  
14 reported by Agent Swartz were consistent with the types of  
15 phenomena reported by numerous police officers involved in 15:03:51  
16 deadly force encounters who have no reason to make this up.

17 So unless Agent Swartz sat down and deliberately  
18 reviewed the literature and carefully crafted this story to  
19 correspond to this research, then I tend to take it at face  
20 value. 15:04:09

21 But, again, in any circumstance I can't swear to you  
22 what's in the mind of another person. All I can do is provide  
23 a context that shows that anything that Agent Swartz has  
24 described either to me or that I've heard in the courtroom  
25 today, is consistent with what we know from other cases. 15:04:22



~~Laurence Miller - Cross-Examination~~

1 Q. Except for the fact that the greatest memory suppression  
2 happens during the initial threat. That's sort of been flipped  
3 on its head in this particular case.

4 A. Well, not necessarily, because the greatest threat is  
5 whatever the agent has perceived it to be. Again, I wasn't  
6 inside the head of the agent. If he thought that moving down  
7 that line was moving closer and closer and closer to getting  
8 killed, that would seem to represent a pretty acute threat.

15:04:36

9 Q. Even if there's no one on the street?

10 A. Well, the point is we know there was no one on the street,  
11 but what was in that agent's mind at the time he was moving  
12 down the line?

15:04:49

13 Q. And you don't have any explanation for how he put that in  
14 his mind when there was no one on the street?

15 A. What do you mean how he put that in his mind?

15:04:59

16 Q. So after the eight seconds he claims to see a second  
17 rocker, is that -- a hallucination, is that our only thing we  
18 have to grab on to?

19 A. If that's what he perceived, if this so-called  
20 hallucination of a second rocker, was based on the threat  
21 magnification, then again, that's something that is not  
22 common but not unheard of in these types of emergency  
23 situations.

15:05:12

24 By the way, again, not just in officer-involved  
25 situations. If you work with crime victims, often if a crime

15:05:26

~~Laurence Miller - Cross-Examination~~

1 victim is abducted or assaulted, they'll often claim there were  
2 multiple assailants even though there was only one that was  
3 identified.

4 So, again, the tendency to magnify a threat, either  
5 the number of people, the threat that they pose, what they were  
6 doing, is something that's universal across emergency  
7 situations, and that's unfortunately how the person will  
8 remember them.

9 Q. But, of course, a crime victim isn't trained on being a  
10 victim. But Mr. Swartz is trained as a firearms instructor in  
11 how to respond to a threat.

12 So we are kind of talking apples and oranges.

13 A. Well, how to respond to a threat as he perceives that  
14 threat at the moment.

15 Q. And he's been involved in at least five to seven other  
16 rockings, so -- by his own admission. So he has, in fact,  
17 encountered this previously. This is not his first time being  
18 a crime victim.

19 A. Well, I don't know if I call him a crime victim, but it  
20 certainly was not --

21 MR. CHAPMAN: Object to the form of the question.

22 THE COURT: He can answer.

23 THE WITNESS: So, yeah, based on his own testimony  
24 that we've all heard, it's not his first rocking.

25 MS. FELDMEIER: Thank you. Appreciate your time.

~~Laurence Miller - Redirect Examination~~

## REDIRECT EXAMINATION

BY MR. CHAPMAN:

Q. Did Agent Swartz, in the three times that you spoke to him, make any bizarre claims or claims that weren't consistent with your testimony today about symptoms that he experienced?

15:06:40

A. The short answer to that question is no. I mean, pretty much everything he told me is consistent of what both the literature reports, and what I've observed in hundreds of cases of justified officer-involved shootings.

The mental phenomena that I discussed are pretty universal. Again, not just in law enforcement, in just about any type of emergency circumstance. There might be, again, some people in this room who have gone through circumstances that are similar to this. But this is the way Mother Nature made your brain to keep you alive during an emergency.

15:07:03

15:07:19

MR. CHAPMAN: No further questions.

THE COURT: Jurors have any questions, please place them in writing.

(At sidebar on the record.)

THE COURT: Are we going to have another witness?

15:07:57

MR. CHAPMAN: Agent Hallert.

THE COURT: We'll take a bathroom break.

How long do you think Hallert is going to be?

MR. CHAPMAN: Ten minutes.

MS. FELDMEIER: He's really short. That's all I'm

15:08:07

~~Laurence Miller - Jury Questions~~

1 anticipating.

2 THE COURT: What's he, about five six, five five?

3 MS. FELDMEIER: Judge, anybody under six foot --

4 MR. CHAPMAN: Was that remark intended at me, Judge?

5 THE COURT: No.

15:08:18

6 How much of the details of this case were you provided  
7 with before you interviewed Mr. Swartz?

8 In your experience have you observed that an  
9 individual perception and subsequent threat magnification  
10 increases when there is multiple other individuals present?

15:08:37

11 MS. FELDMEIER: Like witnessing?

12 THE COURT: I think they're talking about the other  
13 officers, I think is what they're talking about.

14 MS. FELDMEIER: I thought they meant maybe more  
15 assailants.

15:08:50

16 THE COURT: I don't know what it means. I just read  
17 what it says.

18 (End of discussion at sidebar.)

19 THE COURT: Doctor, I have a couple of questions from  
20 the jurors.

15:09:07

21 How much of the details of this case were you provided  
22 with before you interviewed Mr. Swartz?

23 THE WITNESS: I was provided with a stack of records  
24 which included -- I didn't bring them all with me today, but  
25 included witness statements, at least one deposition,

15:09:21

~~Laurence Miller - Jury Questions~~

1 statements that related to crime scene reports. I don't have a  
2 complete list of those, but I was provided with a fairly  
3 comprehensive amount of records to review.

4 THE COURT: In your experience have you observed that  
5 an individual's perception and subsequent threat magnification  
6 increases when there is multiple other individuals present? 15:09:40

7 THE WITNESS: It's not necessarily the amount of  
8 individuals present, but basically the confusion and the roles  
9 of those individuals. Again, it depends on who those  
10 individuals are. If they're other assailants, obviously that's 15:10:00  
11 going to heighten the threat. But I think what we're referring  
12 here is if there are other officers present.

13 Police officers feel a tremendous responsibility for  
14 one another. And if they feel that one of their numbers -- one  
15 of their members is going to be threatened, that -- that 15:10:16  
16 antenna is going to be up. And this may, in fact, itself  
17 contribute to this threat magnification.

18 It's one thing if I simply believe that my life is  
19 being threatened. But imagine feeling that not only it's your  
20 life, but the people that you've worked with, your compatriots, 15:10:33  
21 and in some cases innocent civilians are going to be  
22 threatened. If it's other people whose lives depend on you,  
23 that threat magnification and that desire to protect those  
24 individuals is going to be heightened still more.

25 So yes, that can certainly contribute to a greater 15:10:48

~~Laurence Miller - Recross-Examination~~

1 level of perceived threat.

2 THE COURT: Mr. Chapman, any further questions?

3 MR. CHAPMAN: No further questions.

4 THE COURT: Miss Feldmeier?

5 RECROSS-EXAMINATION

15:10:59

6 BY MS. FELDMEIER:

7 Q. So, Mr. Miller, I think you wrote, in most circumstances  
8 police kill citizens when they believe they have no choice in  
9 order to preserve human life, their own or that of other  
10 citizens.

15:11:12

11 And furthermore you've stated, so the rule for deadly  
12 force encounters is simple, do not use deadly force unless  
13 there is absolutely no choice.

14 Those are your statements, aren't they, sir?

15 A. Yes, they are.

15:11:25

16 Q. So if there are other choices than deadly force, that would  
17 be an appropriate -- in the officers you've interviewed, if  
18 they have other choices?

19 A. Well, that's the tactical standard, is to use deadly force  
20 only when it's necessary. But what constitutes a need for  
21 deadly force is obviously based on the perception and judgment  
22 of the responding officer.

15:11:40

23 MS. FELDMEIER: Thank you.

24 THE COURT: You may step down.

25 Thank you.

15:11:54

~~Laurence Miller - Recross-Examination~~

1 THE WITNESS: Thank you, Your Honor.

2 THE COURT: We'll take our afternoon recess, be about  
3 15 minutes.

4 Thank you.

5 (Recess at 3:12 p.m.)

15:12:00

6 (Further proceedings held on the record not included in  
7 this transcript.)

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~~CR-15-1723-TUC-RCC - April 9, 2018~~

C E R T I F I C A T E

I, CANDY L. POTTER, do hereby certify that I am duly appointed and qualified to act as Official Court Reporter for the United States District Court for the District of Arizona.

I FURTHER CERTIFY that the foregoing pages constitute a full, true, and accurate transcript of all of that portion of the proceedings contained herein, had in the above-entitled cause on the date specified therein, and that said transcript was prepared under my direction and control.

DATED at Phoenix, Arizona, this 10th day of April, 2018.

s/Candy L. Potter  
Candy L. Potter, RMR, CRR